

CZECHOSLOVAKIA/Organic Chemistry: Synthetic Organic Chemistry. G-2

Abs Jour: Ref Zhur-Khim., No 13. 1958, 43397.

0.05 mole of the acid are diazotized and coupled, in  $\text{Na}_2\text{CO}_3$  solution, with 0.05 mole III, the dye is salted out and oxidized with  $\text{NaOCl}$  to the tetra-Na salt of 1,4-bis-(2-naphtho-1,2'-triazolyl)-benzene-6', 8', 6'', 8''-tetrasulfonic acid, yield 24 g. An acid solution of 0.05 mole tetrazotized I is neutralized to Brilliant Yellow with a solution of  $\text{Na}_2\text{CO}_3$  and is coupled at 0 with 0.05 mole II in 400 ml water and 25 ml 2.5 N  $\text{Na}_2\text{CO}_3$ . The solution of the monazo-dye is added dropwise at 20-30° to a solution of 0.07 mole III in 600 ml water and 400 ml pyridine, after 15 minutes 300 ml of the liquid are distilled off the residue is diluted to 1.5 liter and oxidized (boiling for 40 minutes) with 0.22 mole  $\text{CuSO}_4$  in 400 ml water and 300 ml 25%  $\text{NH}_4\text{OH}$ . The

Card : 5/14

CZECHOSLOVAKIA, Organic Chemistry Synthetic Organic Chemistry. 7-2  
 Abs Jour: Ref Zhur-Khin, N 13 1957, 43397

precipitated Na-salt of bis-triazole trisulfonic acid is dissolved in 2 liters of 30% pyridine, and a saturated solution of NaCl is used to precipitate, at 90°, 28 g of mono-Na salt of 4,4'-bis-(naphtho-1,2-triazolyl)-diphenyl-6",8",7"-trisulfonic acid (IV). The mono-Na salt of 4,4'-bis-(naphtho-1,2-triazolyl)-diphenyl-5",9",7"-trisulfonic acid is prepared analogously, using 1-naphthylamine-4,8-disulfonic acid (V) in the last coupling. Analogously is synthesized the mono-Na salt of 4,4'-bis-(naphtho-1,2-triazolyl)-diphenyl-4",7",7"-trisulfonic acid; the last azo-coupling being carried out with 2-naphthylamine-3,6-disulfonic acid (VI). Coupling of tetrazotized I in Na<sub>2</sub>CO<sub>3</sub> medium with III, V or VI, and oxidation

Card : 6/17

sulfonic acid and ...  
 acid and 2,6-naphthylamine sulfonic acid, the ...  
 Na salts of 4,4'-bis-(2-naphtho-1,2-triazolyl)-11-

CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry G-2

Ats. Chem. Ref. Zhur-Khin, No. 13, 1997, 43197.

of the resulting dis-az -dyestuff, yielded, re-  
spectively, the tetra-Na salt of 4,4'-bis-(2-  
naphthyl-1,2-triazolyl)-diphenyl-6",5",4",3"-  
tetrasulfonic acid, -5",4",3",2"-tetrasulfo-  
nic acid, and 4",3",2",1"-tetrasulfonic acid.  
Coupling of 1 mole tetrazolized benzidine-  
3-sulfonic acid with 2-naphthylamine-6-sulfonic  
acid (VII) in Na<sub>2</sub>CO<sub>3</sub> medium, oxidation of resulting  
dye with OsO<sub>4</sub> in NH<sub>4</sub>OH, and salting out, yielded  
7.5 g tri-Na salt of 4,4'-bis-(2-naphthyl-1,2/-  
triazolyl)-diphenyl-3,6"-6"-trisulfonic acid.  
Analogously were synthesized, from benzidine-3,3'-di-  
sulfonic acid and VII and benzidine-2,2'-disulfonic  
acid and 2,6-naphthylamine sulfonic acid, the tri-  
Na salts of 4,4'-bis-(2-naphthyl-1,2/-triazolyl)-4,4'-

Part 1: 7/1/7

19

CZECHOSLOVAKIA Organic Chemistry Synthetic Organic Chemistry

Abstr. Jour. For Zhur-Khin, No. 13, 1953, 413/7.

phenyl-3,3',6,6'- and 2,2',7,7'-tetrasul-  
fonic acid. Coupling of tetraz tiled  $\alpha$ -dianisi-  
dine with III (gradually, in acid, neutral, and  
acetate-medium) and oxidation of the dye with  
 $\text{CuSO}_4$  in aqueous pyridine, yielded the tetra-Na  
salt of 4,4'-bis-(2-naphtho-1,2-triazolyl-  
3,3'-diethoxy-diphenyl-6,6',6'',8'')-tetrasul-  
fonic acid. From tetraz tiled  $\alpha$ -tolidine and III  
in aqueous pyridine, was obtained the tetra-Na  
salt of 4,4'-bis-(2-naphtho-1,2-triazolyl-  
3,3'-diethyl-diphenyl-6,6',6'',8'')-tetrasulfonic  
acid. Analogously from 3,3'-dichlor-benzidine  
and III (in neutral and NaHCO<sub>3</sub> media) the result-  
ing dyestuff yielded on oxidation with  $\text{CuSO}_4$  in  
aqueous pyridine, the tetra-Na salt of 4,4'-bis-

Chem. 1: 8/11

CZECHOSLOVAKIA Organic Chemistry Synthetic Organic Chemistry. 3-2

Acta Univ. Pur. Natur.-Khim. No. 11, 1958, 433-437.

2-naphtho-1,2-triazolyl-3,6-bis(4-phenyl-6",8"-tetrasulfonic acid. By the action of  $\text{SOCl}_2$  on the Na salt of 2-(4'-aminophenyl)-naphtho-1,2-triazolyl-6',8'-disulfonic acid, in water in the presence of  $\text{Na}_2\text{CO}_3$ , was obtained the tetra-Na salt of 3,6-bis-(2-naphtho-1,2-triazolyl-4-phenyl)-urea-6",8"-tetrasulfonic acid. Coupling of tetrazotized benzidine sulfone with III (in  $\text{Na}_2\text{CO}_3$ ) and oxidation with  $\text{CuSO}_4$  in aqueous pyridine yields the tetra-Na salt of 3,6-bis-(2-naphtho-1,2-triazolyl)-diphenylsulfone-6',8',-6",8"-tetrasulfonic acid. From 2-amino-6-acetylamino-diphenylenesulfone-2-sulfonic acid and VII, in a solution of  $\text{CH}_3\text{COONa}$ , splitting off of acetyl by boiling with  $\text{NaOH}$ , further coupling with VII and oxidation of resulting bis-az-

Cont. : 2,34

2

CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry 6-2

Abs Jour: Ref Zhur-Khiz., No 13, 1958, 43397.

Introduction of amino-group into the nucleus condensed with the triazole ring, the latter being a weak chromophore of an effectiveness equal to the group  $=C=O$  or  $-CH=N-$ . As a result of introduction of amino groups there takes place a bathochromic shift in  $\epsilon$  and absorption. The substances prepared in the course of this research are faster to light than the naphtho-triazole sulfonic acids described in Communication I. A suspension of 0.025 mole tetrazolized VIII is added dropwise (5-10°, 30 minutes) to a solution of 0.525 mole Na-salt of VII and 0.15 mole  $CH_3COONa$  in 500 ml water, the mixture is stirred (5-10°, 2 hours), heated to 80°, 0.075 mole Na CO<sub>3</sub> are added stirring is continued for 1 hour then the batch is diluted to 2 liters, 75 ml

Card : 11/87

CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry G-2

Ats Jour: Ref Zhur-Klin. No 13, 1958, 43397.

a 2% aqueous solution of IX with a 5% solution of  $\text{KMnO}_4$  at  $80^\circ$ . Analogously to IX there is obtained from VIII and the corresponding naphthyl-amino sulfonic acids the tetra-Na salts of 4,4'-bis-(2-naphtho-[1,2]-triazolyl)-stilbene-2,2',5'',5'''-tetrasulfonic and -2,2',7'',7'''-tetrasulfonic acid. Tri-Na salt of 4-amino-4'-(2-naphtho-[1,2]-triazolyl)-stilbene-2,2',5'-trisulfonic acid (X) is obtained by the previously described procedure (RUS, 1945, Misc. Rep. 20, Appendix 15). On interaction 4-nitro-benzoyl chloride with X in aqueous solution at  $80^\circ$ , in the presence of  $\text{CH}_3\text{COONa}$ , there is obtained, after reduction according to Dechant and salting out, the tri-Na salt of 4-(p-amino-benzoylamino)-4'-(2-naphtho-[1,2]-triazolyl)-stilbene-2,2',5'''-trisulfonic acid

Card : 13/57

22

NECHOSLOVAKIA/Organic Chemistry: Synthetic Organic Chemistry

His Jour: Ref Zhur-Khiz: . N. 1: 1958, 43397.

4-(1,2,4-triazol-5-yl)-stilbene-2,2',6'-trisulfonic acid. Analogously to XI, 1-nitro-benzoylation of XII and reduction of the resulting nitro-benzoyl derivative gives the tri-Na salt of 4-(p-aminobenzoylamino)-4'-(2-naphthyl)-1,2,4-triazol-5-ylstilbene-2,2',6'-trisulfonic acid. 50 ml of aqueous suspension of 1 mole tetrazolized VIII are added within 30 minutes to a solution of 22 mole 1-phenylene diamine in 1.7 liters water and 0.15 ml soda. The mixture is diluted with 500 ml water, stirred (11 hours), and heated out at 55° to get the corresponding tetrazol-lye. The latter is dissolved in 2.5 liters of water and after addition of 40 ml 2% NH<sub>4</sub>OH and 10 mole CuSO<sub>4</sub> in 600 ml water, the solution is heated (95°, 30 minutes). 2.1 g

Card : 15/37

22



CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry

3-2

Its Jour: Ref Zhur-Khim. 13, 1955, 4337.

glycerol and 2.5 ml 20%  $\text{NH}_4\text{OH}$  are added, and the mixture is heated again ( $90^\circ$ ), 2 hours. On acidification with 65 ml concentrated  $\text{HCl}$  at  $90^\circ$  there are obtained 28 g of 4,4'-bis-(2-(5"-amino-benzotriazolyl))-stilbene-2,2'-disulfonic acid. Analogously, the oxidation of the dyestuff (in the presence of pyridine, obtained from VIII and Na-salt of 2,6-toluylene diamine-4-sulfonic acid, gives the tern-Na salt of 4,4'-bis-(2-(4"-methyl-5"-amino-benzotriazolyl))-stilbene-2,2',7",7"-tetrasulfonic acid, which is acetylated with an excess of  $(\text{CH}_3\text{CO})_2\text{O}$  at  $40^\circ$  in soda solution and isolated by salting out of the corresponding 5"-acetyl-derivative. 0.5 mole of Na-salt of VIII in 300 ml water, 1 mole K-salt of 2-nitro-chlorobenzene-4-sulfonic acid and 1.2 mole

Yield : 16/51

CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry. 7-1

ACS Jour: Ref Zhur-Kh... No 13, 1956, 43397.

MgO, are heated for 6 hours at 170°/5 atmospheres. Diluted to 1 liter, 40 ml 2.5 N NaOH are added at 50°, and from the filtrate are salted out the crude Na-salt of 4,4'-bis-(2"-nitro-4"-sulfo-phenylamino)-stilbene-2,2'-disulfonic acid (XIII), which yields on reduction according to Dechamp the corresponding 2"-amino-derivative (XIV). The latter is dissolved in 300 ml water, acidified with 100 ml 1 N HCl, there are added dropwise 12 ml 2.5 N NaNO<sub>2</sub> at 10°, and there is separated the Na-salt of 4,4'-bis-(1-benzotriazolyl)-stilbene-2,2',5,5'"-tetrasulfonic acid (XV). 1-methyl-benzotriazole, MP 45°, and 2-methyl-benzotriazole, BP 102°/15 mm, are obtained by the previously described meth. 1. Zr Elfeiffer F. et al., Liebig's Ann. Chem., 1955, 581, 113. 0.05 mole sulfanilic

Card : 17/4

24

CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry. 3-4

bs Jour : Ref Zhur-Khiz., No. 13, 1958, 43397.

300 ml alcohol is added (3 increments, 70°, 2 hours,, the mixture is boiled 8 hours, 300 ml of liquid are distilled off, and the residue is cooled to get 44 g of Na-salt of 2,4-dinitro-diphenyl-amine-4'-sulfonic acid, which (0.075 mole) is reduced in 75 ml alcohol with 0.125 mole  $\text{Na}_2\text{S}$  and 0.13 mole  $\text{NH}_4\text{Cl}$  in 15:1 water, to get the Na-salt of 2-amino-4-nitro-diphenyl-amine-4'-sulfonic acid; III. Disulfonic acids of the derivatives of naphthotriazole, based on 4-amino-diphenyl, are characterized by a good clarifying effect on cellulose, but are not -----

Card : 10/4

CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry. G-2

Abstr Jour: Ref Zhur-Khim., No 13, 1958, 43397.

sufficiently fast to light. Derivatives containing in the diphenyl nucleus sulfogroups in ortho-position to the naphtho-triazole nucleus, are less suitable as bleaching agents due to disrupted coplanarity of the molecule. Enhanced F can be attained in these compounds by introduction of acyl-amino groups in para-position of diphenyl nucleus. Substances which contain in this nucleus more atomic groups with free pairs of electrons are characterized by higher substantive properties. Properties of the prepared substances are described (F on cellulose, clarifying effect on cotton, comparative substantive properties). 600 ml of a solution of 0.05 mole xeryl-diazonium chloride (XVII), are added dropwise to a solution of 0.06 mole Na-salt of III in 900 :1 water, at

Card : 20/47

CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry. 1-2

Abs Jour: Kef Zhur-Khim., No. 13, 1958, 43397.

are distilled off. 650 ml water are added and the batch is acidified with 60 ml HCl (acid). The monosulfonic acid is filtered off by suction, dried at 110°, sulfonated (115-120°, 4 hours) in 200 g 100% H<sub>2</sub>SO<sub>4</sub>, and then is isolated the di-Na salt of 2-(4'-methoxyphenyl)-naphtho- [1,2] -triazole-6,4" (?) -disulfonic acid (XIX). The dyestuff obtained by coupling of 0.05 mole diazotized 4-amino-4'-methoxy-diphenyl with 0.055 mole III in 2 liters of water and 200 ml pyridine, at 5°, is salted out after distilling off the pyridine, oxidized with CuSO<sub>4</sub> in aqueous pyridine, and salted out to get 22 g of di-Na salt of 2-(4'-methoxyphenyl)-naphtho- [1,2] -triazole-6,4"-disulfonic acid. The dyestuff (from 0.01 mole 4'-chloroxenyl-diazonium chloride and 0.012 mole III in 200 ml 30% pyridine is oxidized

Card : 22/3+

CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry

7-2

Abstr Jour: Ref Zhur-Khim., N-13 1958, 43397

sulfonic acid (XX, the acid); with  $(CH_3CO)_2O$  in NaHCO<sub>3</sub> solution at 40° it forms the acetyl derivative which was analyzed as the Ba-salt,  $C_{14}H_{11}O_6N_3$ ,  $S_2Ba \cdot 4H_2O$ . 4-Methoxybenzoyl-, phenacetyl- and phenoxy-acetyl-derivatives of XX are obtained by acylation with the corresponding acid chlorides in 20% aqueous pyridine at 40-80° and were analyzed as the Ba-salts

IV. Investigated were the changes in color and F brought about by introduction of amino-, methoxy- and sulfo-group in the derivatives of 2-phenyl-naphtho-(1,2)-triazole. Introduction of amino-group in position 4' or 2' of the phenyl residue causes a bathochromic shift in color and F. An

Card : 24/87

CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry. 7-4

Abs Jour: Ref Zhur-Khim., No 13 1956, 43397.

of water, stirred for 12 hours, salted out with NaCl, acidified with HCl (to Congo. to get the dye; the latter is oxidized in 2 liters of water (90-95°, NaOCl) and salted out to get 25.5 g of Na-salt of 2-phenylnaphtho- [1,2] -triazole-4'-sulfonic acid. The dyestuff [from 0.05 mole 4-oxalyl-amino-aniline-3-sulfonic acid (XXII) and 0.055 mole XXI] is dissolved in 400 ml water and 100 ml concentrated NH<sub>4</sub>OH and oxidized (90°, 0.1 mole NaSO<sub>4</sub> in NH<sub>4</sub>OH), the resulting triazole is saponified by boiling (3 hours) with 400 ml 2.5 N NaOH, the product is extracted with water to get 11.2 g Na-salt of 2-(4'-aminophenyl)-naphtho- [1,2] -triazole-3'-sulfonic acid (from 4% pyridine). Coupling of 0.1 mole diazotized 4-nitraniline-2-sulfonic acid

Card : 26/3 +

CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry

G-2

Ats Jour: Ref Zhur-Khim., No 13, 1958, 43397.

disulfonic, 4,7-disulfonic, and also the Na-salts of 2-(2'-aminophenyl)-naphtho-1,2-triazole-7-sulfonic, 2-(3'-aminophenyl)-naphtho-1,2-triazole-7-sulfonic, 2-(3'-aminophenyl)-naphtho-1,2-triazole-6,6-disulfonic, 2-(4'-amino-2'-methoxyphenyl)-naphtho-1,2-triazole-6-sulfonic, and 2-(2',4'-phenylene-diamino)-naphtho-1,2-triazole-6-sulfonic. 0.1 mole diazotized XXII are added dropwise at 15° to a solution of Na-salt of VII and 50 g  $\text{CH}_3\text{COONa}$  in 1 liter of water, the mixture is stirred for 12 hours, heated to 70°, made alkaline to Brilliant Yellow, and salted out to separate the dyestuff, which is then oxidized in 500 ml water (90-95°, 0.2 mole  $\text{CuSO}_4$  in  $\text{NH}_4\text{OH}$ ). The Cu-salt thus obtained is boiled (5 hours; with

Card : 28/34



CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry

9-2

Abstr. Jour: Ref Zhur-Khina, No 13, 1956, 43397.

hydroxy-triazinyl-(2')-amino-phenyl-naphtho-  
-1,2'-triazole-6,8-disulfonic acid (XXV) are  
characterized by a strong bleaching effect on cellu-  
lose, but they are of low fastness to light. Acy-  
lation of the amino-group of the phenyl residue,  
in position 4' or 3', produces a hypsochromic  
shift in F-color while the absorption itself is not  
altered. The paper includes ultraviolet spectra  
of absorption of the prepared substances, data on  
their F on cellulose in acidic and alkaline media,  
bleaching effect on cotton, and their relative sub-  
stantive properties. 0.03 mole  $(CH_3CO)_2O$  are  
added dropwise to a solution of 0.01 mole Na-salt of  
2-(3'-aminophenyl)-naphtho-1,2'-triazole-6,8-  
disulfonic acid in 30 ml water and 24 ml 2.5 N

Card : 30/31

CZECHOSLOVAKIA/Organic Chemistry Synthetic Organic Chemistry

Abstr. Jour: Ref Zhur-Khina, No 13, 1956, 43397.

$Na_2CO_3$  at  $40^\circ$ ; the mixture is heated to  $80^\circ$  and  
salted out to get 2 g of Na-salt of 2-(3'-acetaminophenyl)-naphtho-  
-1,2'-triazole-6,8-disulfonic acid  
(crystals from NaCl-solution). Analogously are  
obtained the Na-salts of: 2-(4'-acetaminophenyl)-naphtho-  
-1,2'-triazole-7-sulfonic acid, and 2-(4'-acetaminophenyl)-naphtho-  
-1,2'-triazole-4,7-disulfonic acid,  
and 2-(3'-acetaminophenyl)-naphtho-1,2'-triazole-  
4,7-disulfonic acid, and 2-(3'-acetaminophenyl)-naphtho-  
-1,2'-triazole-7-sulfonic acid. 0.1 mole 4-nitran-  
iline-2-sulfonic acid are boiled (15 minutes) with 100 ml  
 $(CH_3CO)_2O$ , the resulting acetyl-derivative is reduced  
according to Lechamp, the solution is made acid and  
diazotized with 0.75 mole  $NaNH_2$ , the resulting sus-  
pension of the diazo-compound is added dropwise to a

Card : 31/34

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G-2

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 77690.

Author : Dobas, J. and Pirkl, J.

Inst : Not given.

Title : Fluorescent Derivatives of 1,2,3-triazole. VI.  
Sulfonic Acids of 2-styrylnaphtho-(1,2)-triazole.

Orig Pub: Chem Listy, 51, No 12, 2330-2333 (1957) (in Czech).

Abstract: The synthesis of sulfonic acid derivatives of naphthotriazoles, possessing blue-violet fluorescence or greenish-blue color with satisfactory light fastness on cotton- and nitrogen-containing fibers, is described. Preparation: 0.05 mol of the Na salt of 2-(4'-aminophenyl)-naphtho-(1,2)-triazole-6,8-disulfonic acid in 90 ml water is diazotized with 20 ml 2.5N  $\text{NaNO}_2$  in 200 ml water,

Card 1/6

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G-2

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 77690.

Abstract: 20 conc HCl, and 200 gms of ice at 0-5°, followed by salting out with NaCl; the diazo solution is added to a solution of 7.5 gms cinnamic acid in 300 ml acetone, 20 ml of a 30% solution of CH<sub>3</sub>COONa (I) and a solution of 15 gms CuCl<sub>2</sub>·2H<sub>2</sub>O in 50 ml water are added, and the solution is heated to 40-45° and stirred for 40 min; following separation of the acetone by steam distillation, extraction with C<sub>6</sub>H<sub>6</sub>, and the addition of I, 1.7 gm of a substance (II) is obtained; this product is converted to the Ba salt. The addition of a suspension of the diazonium compound prepared from 0.04 mol of the Na salt of 2-(4'-aminophenyl)-naphtho-(1,2)-triazole-6-sulfonic acid to a sol-

Card 2/6

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G-2

abs Jour: Ref Zhur-Khimiya, No 23, 1958, 77630.

Abstract: Reaction of 15 gms p-HO<sub>3</sub>SC<sub>6</sub>H<sub>4</sub>CH<sub>3</sub> = CHECOOH (III) in 150 ml water, followed by the addition of 75 ml of a 20% solution of I, 20 ml of 5% CuCl<sub>2</sub>·2 H<sub>2</sub>O, and 1 gm of Cu powder, stirring for 90 min, and salting out gives 2 gms of substance IV. The same product is obtained by the diazotization of 0.01 mol of 4-aminostilbene-4'-sulfonic acid (V), by reacting the diazo compound with 0.015 mole of the Na salt of 2-naphthylamino-5-sulfonic acid (VI) in a solution of I, (8 hrs, 20°), followed by alkalization, salting out of the dye with NaCl, and oxidation in 100 ml water with 5 gms of CuSO<sub>4</sub>·5H<sub>2</sub>O in 30 ml water and 20 ml of 25% NH<sub>3</sub>

Card 3/6

30

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. 7-2

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 77690.

Abstract: until the solution is bleached while boiling;  
yield 1.2 gms [sic].

II  $R = R^2 = SO_3Na$ ,  $R^1 = R^3 = R^4 = H$ ; IV  $R = R^4 = SO_3Na$ ,  
 $R^1 = R^2 = R^3 = H$ ; VII  $R = R^3 = R^4 = SO_3Na$ ,  $R^1 = R^2 = H$ , IX  
 $R^1 = R^3 = R^4 = SO_3Na$ ,  $R = R^2 = H$ ; X  $R = R^2 = R^4 = SO_3Na$ ,  
 $R^1 = R^3 = H$

11 gms of substance VII were obtained by a procedure similar to that used in the preparation of IV, using the Meerwein reaction and 0.12 mol of

Card 4/6

CZECHOSLOVAKI. / Organic Chemistry. Synthetic Organic Chemistry. 1-2

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 77690.

Abstract: the diazotized Na salt of 2-(4'-aminophenyl)-naphtho-(1,2)-triazole-6,3'-disulfonic acid and III. As in the case of IV, VII was also synthesized by the diazotization of 4-aminostilbene-2,4'-disulfonic acid (VIII), followed by salting out and reaction of the diazonium compound with VI in I, salting out of the dye obtained, and oxidation of the latter with an ammoniacal solution of  $\text{CuSO}_4$  while boiling. The yield is 4.5 gms. The substance IX was prepared by a procedure similar to that used above by diazotizing VIII and reacting the diazonium compound with the Na salt of 2-aminonaphthyl-6-sulfonic acid with subsequent oxidation of the product obtained. The reaction of the diazonium compound from V with the

Card 5/6

31

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry.

Abstr Jour: Ref Zhur-khimiya, No 23, 1958, 77690.

Abstract: Na salt of 2-aminonaphthyl-5,7-disulfonic acid followed by oxidation of the reaction product obtained gives X. For Communication V see RZhkhim, 1958, 43397. -- A. Emr.

Card 6/6

PIRKL, J.

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G-2

Abstr Jour: Ref Zhur-Khimiya, No 23, 1958, 77603.

Author : Pirkel, J. and Dobas, J.

Inst : Not given.

Title : On the Synthesis of 4-amino-4'-chlorostilbene-2, 2'-disulfonic acid.

Orig Pub: Collect Czechoslov Chem Commun, 23, No 1, 152-154 (1958) (in German with a Russian summary).

Abstract: See RZhKhim, 1958, 57432.

Card 1/1



CZECHOSLOVAKIA/Organic Chemistry. Synthetic Organic Chemistry 3-2

Abstr Jour: Ref Zhur-Khim., No 24, 1958, 81695.

Author : Dotas J. Pirkl J. Hancusek V

Inst :

Title : The Fluorescent Derivatives of 1,2,3-Triazole I The  
Sulfo acids bis-Naphthotriazoles, Based on p-phenylene  
diamine, benzidine, benzidine sulfone and diaminodiphenyl  
urea II. The sulfo acids benzo and naphthotriazoles  
based on 4-aminodiphenyl III The Coloration and Fluor-  
escence of Some Derivatives of 2-phenylnaphtho-1,2-triazole

Orig Pub: Collect. czechosl. chem. commun., 1958, 23, No 2 280-290;  
No 5, 911-925; 926-931

Abstract: See R. Zh. Khim., 1958, 43397.

Card : 1/1

CZECHOSLOVAKIA/Organic Chemistry - Synthetic Organic Chemistry.

G-2

Abs Jour: Referat Zhur-Khimiya, No 5, 1958, 14429.

Author : Dobras Jaroslav, Marhan Jiri, Krejci Jiri, Pirkl Jaromir

Inst :

Title : Arylation by Means of Diazonium Salts. II. Study of the Effects of Catalysts, Temperature and Structure of Diazonium Salt on the Course of Its Interaction with 4-Sulfocinnamic Acid.

Orig Pub: Chem. listy, 1957, 51, No 3, 463-469; Sb. chekhosl. khim. rabot, 1957, 22, No 5, 1473-1481.

Abstract: On interaction of  $p\text{-NO}_2\text{C}_6\text{H}_4\text{N}_2\text{Cl(I)}$  with 4-sulfocinnamic acid (II), in aqueous medium, there is formed the 4-nitrostilbene-4'-sulfonate of sodium (crystals from water) which on reduction with Fe in a neutral medium gives 4-aminostilbene-4'-sulfonic acid (crystals from aqueous  $\text{C}_5\text{H}_5\text{N}$ ). Analogously from inner salt of 2-sulfo-4-nitrophenyl diazonium

Card : 1/4

• CZECHOSLOVAKIA/Organic Chemistry - Synthetic Organic Chemistry.

G-2

Abs Jour: Referat Zhur-Khimiya, No 5, 1958, 14429.

group in the para position of the diazonium salt produce a detrimental effect. Previous communication see Chem. listy, 1952, 46, 277.

Card : 4/4

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CIA-RDP86-00513R001341010012-8"

Plum, G. J. D. J. G.

"Remarks on the preparation of 4-amino-4'-chlorobiphenyl-2,2'-disulfonic acids."

p. 282 (Institute of Applied Physics - Czechoslovak Academy of Science)  
Vol. 51, No. 5, May 1967

Monthly Index of East European Literature (EEL) 2, Vol. 7, No. 5, 1967

PIRKLE, JAROMIR

Chem. Ind. 51, 1023 (1954). Whereas the prepn. of 4-amino-1-(4-chlorophenyl)-2-(4-sulfamoylphenyl)-5-methyl-1H-imidazole (I) from 4-nitro-1-(4-chlorophenyl)-2-(4-sulfamoylphenyl)-5-methyl-1H-imidazole (II) with  $\text{Na}$  in benzene, the benzene fraction of the 4-amino-1-(4-chlorophenyl)-2-(4-sulfamoylphenyl)-5-methyl-1H-imidazole (II) yielded Na 4-chloro-2-amino-1-(4-chlorophenyl)-5-methyl-1H-imidazole (III) which yielded pure I by recrystallization. Adding a small amount of  $\text{Na}$  to a solution of 4-chloro-2-amino-1-(4-chlorophenyl)-5-methyl-1H-imidazole (III) in benzene also yielded pure I.

Mr. Hudlicko

By

PIHON, Jiri, RNDr.

Effect of fertilizing and previous crop on the content of  
the main nutrients and oil in Slapska winter rape. Roš  
vyroba 9 no.11:192-194, 1962.

1. Střední výzkumný ústav rostlinné výroby, oddělení  
výživy rostlin, Praha.

PIRKL, Josef

Interlock safety system in the Pardubice District of the  
Northwestern Railways. Zel dop tech 11 no.3:69-70 '63.

S/058/62/006/000000/003  
A061/A101

AUTHORS: Teutsch, H., Mateescu, N., Pirlogea, P., Radulescu, C., Timig, P.,  
Vasilin, V.

TITLE: Characteristics of the curved slit neutron beam chopper at the  
Institut atomney fiziki (Atomic Physics Institute) (Bucarest)

REF ID: A061/62/006/000000/003, abstract 1181  
(Studii si cercetari fiz. "ad. RPR", 1961, v. 12, no. 3, 47-  
57, Romanian; summaries in Russian and French)

TEXT: The design of a mechanical neutron beam chopper is described. The  
principal chopper characteristics (transmission function and relative determina-  
tion error of transit time  $\Delta t/t$ ) are given.

[Abstracter's note: Complete translation]

Card 1/1





7

6

✓ The hydrogen bonds and structure of naphthazarin. R. Blinc, D. Hudec, and B. Finkmaier (Univ. Ljubljana, Yugoslavia). *Hydrogen Bonded Papers*, Symposium of Ljubljana, 1997, 333-8 (Pub. 1999).—The infrared and electronic spectra and the dipole moment of naphthazarin (I) were detd. and interpreted. The results show definitely that the H bonds in I are of the nonsym. type. The possibility of the tunnelling of the protons is discussed briefly. Kenneth M. Sancier

1/12

19  
 Dilatometric and nuclear magnetic resonance studies of  
 polyethylene with different branching and crystallinity. A.  
 Kratoch, P. Kratoch, R. Eichmayer, and I. Langer (Univ.  
 of Prague, Czechoslovakia). *Makromol. Chem.* 57, 231-42  
 (1960) (in English).—Dilatometric measurements were made  
 between room temp. and immediately below the m.p.;  
 they showed that the curves of 1st heating differ from those  
 of subsequent cooling in all samples except of monocry-  
 stals. Nuclear magnetic resonance (N.M.R.) was mea-  
 sured with low-resolution equipment to det. the derivation  
 of absorption curve in 30° intervals from -170° to m.p.  
 Samples studied were unbranched Marlex 50 and unbranched  
 Du Pont polyethylene; these gave ratio of the CH<sub>2</sub> and  
 CH groups together with d. to index, viscosity etc. A sharp  
 m.p. without relaxation phenomenon in pure crystals was  
 found by dilatometric investigation while N.M.R. reveals  
 that the mobility of polyethylene chains is appreciably in-  
 creased by heating above 72°. Branched samples have re-  
 sults of a narrow line; its intensity is proportional to the  
 CH<sub>2</sub>/CH ratio, even at -170°. N.M.R. spectra are given.  
 Arthur Lyons

PIRKMAJER, E.

"Course in physics" by S. E. Fris and A. V. Timorevova.  
Vol. 1. Reviewed by E. Pirkmajer. Elektr vest 30 no.  
10/12:320 '62 '63.

STERBAL, S.; PIRKMAJER, E.

Electroluminescence. Obz mat fiz 7 no.1:31-34 Mr '60. (EEAI 9:8)  
(Luminescence)

PIKMAJER, Edo.

Postgraduate course in the application of radioisotopes in industry.  
Obz mat fiz 7 no.4:183-184 '60. (EEAI 10:5)  
(Yugoslavia--Radioisotopes)

FIRKMAJER, E.

Radiation defects. Obz mat fiz 8 no.2:79-86 '61.

1. Nuklearni institut J. Stefan, Ljubljana.

PIRKMAJER, E.; BLINC, J.

Calculated bond lengths, bond orders, and  $\pi$ -electron distributions in naphthazarin. In English p. 117

LJUBLJANA, INSTITUT "JOZEF STEFAN." REPORTS Ljubljana, Yugoslavia Vol. 4  
Oct. 1959

Monthly List of East European Accession (EEAI) LC, Vol. 8, no. 6,  
June 1959  
Uncl.

PICKMAJER, E.

Distr: 4E2c(j) 7

Calculated bond lengths, bond orders, and  $\pi$ -electron distribution in naphthazarine. R. Blinc and E. Pickmayer.

"Selun" Inst. Repts. (Ljubljana) 4, 193-193 (1967).

Energy levels, bond orders, bond lengths, and mol. orbitals were detd. by theoretical analysis for 5,8-dihydroxy-1,4-naphthoquinone, by the L.C.A.O. mol. orbital method

with respect of overlap integrals. J. M. Honig

21  
6 may

22 2 21



PIRKMAJER, S.

"Montmorillonite, A Raw Material For The Production Of Bitumen Emulsion Pastes" p. 169.  
(Nova Proizvodnja, Vol. 4, no. 2, Apr., 1953, Ljubljana)

SO: Monthly List of <sup>East European</sup> ~~Accessions~~ <sup>Vol. 2, No. 9,</sup> Accessions,/Library of Congress, September 1953, Uncl.

PIRKNER, Ferenc, dr.

Perforated gastric ulcer causing abscess in the omental bursa.  
Magy. sebesz. 17 no.1:57-58 F'64.

1. Magyar Tanács Kórhaza, Salgótarján, Sebészeti Osztály.

\*



PIRKO, I.V.

PIRKO, I.V.; SERGIYENKO, A.I.

Veterinary service in Vinniki District strives to increase the  
productivity of collective stockbreeding. Veterinariia 35 no.2:31-34  
F '58. (MIRA 11:2)

1.Sekretar' Vinnikovskogo raykoma kommunisticheskoy partii Ukrainy  
(for Pirko). 2.Glavnyy vetvrach Vinnokovskogo rayona (for Sergiyenko).  
(Vinniki District--Veterinary medicine)

PIRKO, Jozsef

Plasma cutting by acidproof steels. Magyar fizikai lapok 1964. 3:321-324

Plirkó, Jozsef

•  
Cutting by plasma arc. Let ted 1<sup>st</sup> n .45:1435-1436 10 N '63.

L 90254-66 INT(4) IJP(8)

ACCESSION NR: AP8019005

CE/0001/00/000/000/000/0000

AUTHOR: PIKUL, S. (Professor, Doctor, Doctor of sciences)

TITLE: On the kinematic stationarity of point trajectories of motion

SOURCE: Sirojatsky sample, no. 4, 1965, 240-260

TOPIC TAG: motion mechanics, algebraic geometry, motion equation, solid kinematics, motion stability

ABSTRACT: The theory and practical application of motion P usually involve the use of the geometrical singularities of this motion, particularly 1-tactic points, i.e., tetratactic points (points of constant curvature) and points with a contact of an order higher than fourth. An analysis of the singularities is given in geometric terms from the kinematic point of view. Also shown is one of the possibilities which combines the geometric and kinematic points of view: the so-called kinematic stationarity on the point trajectory of motion P (a 1-stationary point of the trajectory and its local extrema) is introduced, and a method of determining 1-stationary points at any point of the motion is given. The meaning of this geometric-kinematic concept is investigated as a function of time also from the standpoint

L 00274-66

ACCESSION NR: AP0010000

3

of possible simplifications. The more generalized approach to the singularities of coplanar motion is quite natural: even in the simplest nontrivial case of a 3-stationary point, familiar results are obtained from Burmester's curve and Hall's point, in terms of the new kinematic relations. Results are obtained in similar fashion for the case of a 4-stationary point. The methods employed in this work make it possible to obtain results which are primarily algebraic-geometrical in character for points with any stationarity. Their determination then permits a reduction of more complex examples to simpler ones, or at least make it possible to obtain results of a constructive-geometrical character. Orig. art. has: 18 formulas.

ASSOCIATION: CVUT, Prague

SUBMITTED: 190-004

ENCL: 00

SUB CODE: ME, MA

NO REF SOV: 004

OTHER: 003

Card

2/2



PIRKO, ZLJENKA

Zaklady operativního počtu. Krata, tisková pedagogické nakl. Učební texty  
vysokých šk 1) (Fundamentals of operational calculus; a textbook. 112s.  
Vol. 1. 1952.

50: Monthly List of East European Accessions. (SEAS). LC. Vol. 5, No. 6 June 1956, Incl.

PIRKO, Z.

Pirko, Zdeněk. The harmonic correspondence. Casopis  
Fest Mat 76, 201-215 (1951). (Czech)

2  
1 - F/M

Dieser Aufsatz knüpft an eine frühere Untersuchung  
analogmatischer Kurven und quadratischer Inversionen  
[Casopis Fest. Mat. 73, 1126-1176 (1950)]. Unter  
geeigneten Voraussetzungen über die Parameterfunktionen  
 $\lambda_i = \lambda_i(t)$  bildet die einparametrische Schar von Kegelschnitten

12

$$(*) \quad \lambda_1(t)x_1^2 + \lambda_2(t)x_2^2 + \lambda_3(t)(x_1x_2 + x_1^2) = 0$$

Topology

ein analogmatisches Netz. Von besonderer Bedeutung ist  
dabei die Einflüsse dieser Schar. Der Punkt  $\lambda_1: \lambda_2: -\lambda_3$   
heißt Mittelpunkt der Schar (\*). In ihrer Abhängigkeit von  
 $t$  bestimmen dann die Verhältnissgleichungen

(12)

$$y_1: y_2: y_3 = \mu_1(t): \mu_2(t): \mu_3(t) = \lambda_1(t): \lambda_2(t): -\lambda_3(t)$$

die sogenannten "Debersten" der analogmatischen Kurven.  
Die eindeutige Korrespondenz zwischen beiden drückt  
sich dabei durch eine weitere Verwandtschaft aus, in welcher  
aber einem Punkt nicht wieder ein Punkt sondern eine  
Gerade entspricht. Verfasser nennt diese Korrespondenz  
harmonische Verwandtschaft und gibt ihre analytische  
Darstellung an. Diese harmonische Verwandtschaft erweist  
sich von birationalem Charakter. Auch ihre Ansammlungen  
(singuläre Korrelationen) werden erwähnt. M. Poul.

12

PIRKO, Zdenek

Laplaceova transformace. 1. cast. Zakladni vlastnosti. (Laplace's Transformation. Part 1. Basic Properties; a university textbook, 1st ed. illus., bibl.) For the students of the Faculty of Electrical Engineering. Prague, CNTL, 1957. r. 133

Bibliograficky katalog, CCR, Ceske mlh, No. 46. 15 October 57. p. 780.

PIRKO, Zdenek, doktor ved, prof., RNDr.

Ten years of the School of Electrical Engineering at the Czech  
Institute of Technology in Prague. Slaboproudý obzor 21 no.12:  
738-741 D '60. (EEAI 10:3)  
(Czechoslovakia--Electrical engineering)  
(Prague--Schools)

PIRKO, ZDENĚK

Pirko, Zdeněk. The harmonic correspondence. II. Časopis Pěst. Mat. 72, 261-272 (1954). (Czech)

Im Anschluss an die vorhergehende Untersuchung (vgl. vorstehendes Referat) behandelt Verfasser nunmehr gewisse spezielle Eigenschaften der im ersten Aufsatz definierten harmonischen Verwandtschaft II. Zunächst werden die aus der Theorie birationaler Punkttransformationen bekannten Begriffe, selbstkonjugierter Punkte, selbstkonjugierter Geraden (allgemein selbstkonjugierter Kurven) auf die Zuordnungen der Verwandtschaft II und ihrer inversen  $H^{-1}$  übertragen und Bedingungen für solche Punkte und Geraden angegeben. Zur harmonischen Verwandtschaft II gibt es nur die folgenden selbstkonjugierten Gebilde: die Ecken des Basisdreiecks und das Kegelschnittbüschel, dessen Kurven beide Seiten des Basisdreiecks berühren, die vom Scheitel  $P$  zu den übrigen beiden Scheiteln führen. Die weitere Untersuchung verknüpft nunmehr die harmonische Verwandt-

2

1-F/W

Topology

Pisko, Zdenek

Schaft  $H$  mit einer Polarverwandschaft  $P$  und einer quadratischen Inversion  $I$  und führt auf die Diskussion der symbolischen Produkte  $PI$ ,  $PH$ ,  $HI$  usw. Als wichtige Sonderfälle werden weiterhin spezielle Grundkurven gewählt, wie Lanné's Kurve

$$c_1x_1^n + c_2x_2^n + \dots + c_nx_n^n = 0 \quad (c_i, n \text{ Konstante}),$$

oder die  $H$ -Kurve

$$x_1^2 + x_2^2 + x_3^2 - h = 0 \quad (x_i, h \text{ Konstante; } x_1 + x_2 + x_3 = 0).$$

Schliesslich werden Fälle autopolarer oder analagmatischer Grundkurven behandelt.

M. Poul (Köln).

*[Handwritten signature]*

Pirko, Z.

521.372.4/5 2  
3883. Chebyshev Polynomials. Z. Pirko and O. Jaroob.  
Slaboproudý Obzor, Vol. 17, No. 1, 28-33 (1958). In Czech.

The principle of approximation is defined and the following methods of approximation are briefly compared: Taylor-series expansion, interpolation, minimization of the average square deviation (Fourier series) and Chebyshev approximation. A most general definition of the latter is given, but only the approximation by means of the  $n$ -degree Chebyshev polynomial is considered. Properties of the polynomial are discussed and it is expressed in several alternative forms.

R. S. Sidorowicz

ITAC, Inc. is a private company.

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Vol. 11, No. 1, Feb. 1968

4. CY

1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 26

[illegible]



*Pirko, Zdenek. Theory of gliding motion. V. 1. Kralovske Ceske Spolecnost, Brno, Tisk. Alfabeta. Pirodovyl, 1946, no. 16, 9 pp. (1947) (Czech).*

Let a Cartesian coordinate system  $\Sigma(x, y)$  glide along a curve  $C$  so that the origin  $O$  of  $\Sigma$  moves along  $C$ , the  $x$ -axis is always tangential and the  $y$ -axis normal to the curve. The author studies the motion of a point  $P$  analytically, by means of the natural equation (the relation between radius of curvature and length of arc) of  $C$ . First the author finds the trajectory  $\Gamma$  of a point  $P$  whose position is fixed with respect to  $\Sigma$ . He proves that the normal of  $\Gamma$  at  $P$  passes through the corresponding center of curvature  $\Sigma$  of  $C$  and that  $\Gamma$  is the envelope of the circle with center  $\Sigma$  and radius  $OP$ ; he also obtains expressions for the length of arc and for the radius of curvature of  $\Gamma$ . These paragraphs enable him to solve kinematical problems such as how to choose  $C$  so as to make the motion of a certain point  $P$  a translation or a rotation, or how to choose  $C$  so as to make  $\Gamma$  congruent with  $C$ . In particular, if  $P$  is on the  $x$ -axis  $\Gamma$  is a parallel curve to  $C$ , and if  $P$  is on the  $y$ -axis  $\Gamma$  is a point and a curve of  $C$ .

In a similar manner the envelope  $\Gamma$  of a straight line  $l$  of fixed length  $AB$  (to  $\Sigma$ ) is investigated and the following kinematical problems are solved: (i)  $AB$  is the point of contact of  $l$  and  $\Gamma$  and  $l$  is always tangent to  $C$  so that (i) the  $x$ -coordinates of  $A$  and  $B$  should have a constant ratio, (ii)  $P$ 's motion should be a rotation and (iii)  $\Gamma$  should be congruent to  $C$ . Particular cases of  $l$  correspond to parallel curves to  $C$ , to the evolute and to the involute of  $C$ .

A. Fiala.

Source: Mathematical Reviews, 1968, Vol. 9, No. 2

Pirko, Zdenek

Pirko, Zdenek. The fundamental equation of the motion  
of a variable plane figure and its application in the theory  
of plane curves. Casopis Pěst. Mat. Fys. 72, D83-D86  
(1947). (Czech)

Source: Mathematical Reviews,

Vol 9 No. 10

STAW 20

PIRKO, ZDENEK

Pirko, Zdeněk. Sur le mouvement d'une figure plane  
 (Czech. French summary)  
 Casopis Pěst. Mat. Fys. 71, 71-77 (1946).

Pour l'étude des propriétés géométriques d'une figure plane variable qui se meut dans son plan, on se sert habituellement de certaines relations dites "primordiales" ou "fondamentales" qui étaient déduites à son temps par MM. Mannheim et d'Ocagne. Ces relations ne sont qu'un cas très particulier des équations générales, que nous appelons "les équations généralistes de M. Cesàro pour l'analyse intrinsèque des courbes planes." La démonstration de ces équations et leur spécialisation à celles de Mannheim et d'Ocagne font l'objet de notre travail.

Author's summary.

Source: Mathematical Reviews,

Vol

No.

Pirko; Zdenek

Pirko, Zdenek Remarque sur la théorie des roulette.  
 Casopis Pěst. Mat. Fys. 74, D63-D70 (1949). (Czech

French summary)

Dans cet article nous traitons du point de vue de la géométrie cinématique le problème suivant: Etant donné un profil plan  $II_1$ , déterminer un autre profil plan  $II_2$  de la manière, que la roulement de  $II_1$  suivant  $II_2$  (ou inversement) peut être réalisée par une simple translation suivant une ligne droite donnée ou bien par une simple rotation suivant un cercle donné. Nous démontrons à l'aide des équations convenablement choisies que nous appelons les conditions de position et celles du mouvement, que la résolution de tous ces problèmes est ramené à des quadratures.

Author's summary.

*Math*  
 Pirko, Zdenek: Remark about the roulette theory.

Source: Mathematical Reviews.

Vol 11 No. 3

SYRUCER, L.; HIRSOVA, Z.;

Apropos of the distribution of some infectious diseases among the population of the Czechoslovakian SSR. Descriptive epidemiology. 1971. 1-11. 2a 165

1. Ústav epidemiologie a mikrobiologie, Praha, Katedra epidemiologie a mikrobiologie ÚDL, Praha.

RASKA, K.; TUMOVA, B.; HELCL, J.; FEDOVA, D.; PIRKOVA, Z.; PECENKA, J.;  
SKVRNOVA, K.

Annual report of the Czechoslovak Influenza Centre.  
J. hyg. epidem. 7 no. 3:261-271 '63.

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**"APPROVED FOR RELEASE: 07/13/2001**

**CIA-RDP86-00513R001341010012-8**



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L-18347-65 ARG/EEO-2/EWG(j)/EWT(d)/FBD/FSF(h)/FSS-2/EWG(r)/EWT(l)/FBO/FS(v)-3/  
 EEO(k)-2/EWG(s)-2/FCS/ENG(v)/EWP(c)/EPR/ENG(a)/EWP(h)/ENG(c)/EWA(h)/FCS(k)  
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 AEDC(a)/ASD(a)-5/AFMD(z)/AFTC(p)/AFETR/AFTC(a)/SSD(c)/ESD(t) TT/WN/GW  
 ACCESSION NR: AP4044606 2/0028/64/000/004/0223/0239

AUTHOR: Mison, Karel (Prague); Pirko, Zdenek (Prague)

TITLE: Multistage rockets

SOURCE: Pokroky matematiky, fyziky a astronomie, no. 4, 1964, 223-239

TOPIC TAGS: multistage rocket, single stage rocket, ballistic rocket, artificial earth satellite, space rocket, rocket motor

ABSTRACT: The article gives a complete review and discussion of the characteristics of multistage rockets and underlines their superiority over single-stage rockets. On the one hand the dimensional magnitudes (characteristics), and on the other the dimensionless magnitudes (parameters) are defined for the numerically precise expression of the mechanical properties. The application of these magnitudes to single-stage rockets, and in turn to multistage rockets is discussed. The results obtained are illustrated by numerical examples for the ballistic rocket, artificial earth satellites and space rockets for classical rocket motors. Concrete values are given for the Vanguard rocket, the Aerobee, and the Viking, and a look is taken into the future with the nuclear rocket motor. Equiparameter, idem-

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ACCESSION NR: AP4044606

parameter, geometric, and the limit case of infinitesimal rockets are taken as the characteristic and standard types of rockets. The data used in the article were assembled from studies which contained only individual and disparate details relating to the subject. The available literature gives no systematic or elementary elaboration of the problems treated here. This article is pedagogical and a convenient introduction to the problems of multistage rockets. It is planned to give a more rigorous mathematical elaboration of optimization of rockets in later articles. From this point of view, the desirability of a formal discussion of the standard types of multistage rockets is evident. Orig. art. has: 11 diagrams, 3 tables, and 33 formulas.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: SV

NO REF SOV: 000

OTHER: 000

Card 2/2

[illegible]

1. The first group of people who are likely to be affected by the proposed project are the local residents who live in the vicinity of the project site. These residents may be affected by the project in a number of ways, including increased traffic, noise, and air pollution. It is important to identify these potential impacts and develop measures to mitigate them.

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FEDOVA, D. DRASNAR, M.; SVELDA, J.; PIRKOVA, Z.; SODNA, J.; SYMCEK, L.

Epidemic of influenza in Czechoslovakia in February-April 1964.  
J. hyg. epidem. (Praha) 9 no.1:95-110 1965

1. Institute of Epidemiology and Microbiology, Prague.

PIRKOVSKI, Mihail, ing. (Bratislava)

Resistance coefficient in alluvial currents. Studii hidraul  
5:39-60 '63.

1. The Institute of Studies and Research on Waters Management ,  
Bratislava.

PIRKOVSKIY, N. [Pirkovs'kyi, N.]; LIVENTSEV, V.

Marshes retreat. . Znan. ta pratsia no. 1:25 Ja '61.

(MIRA 14:4)

(Rovno Province—Reclamation of land)

PIRKOVSKIY, S.P.; ROGOVIN, M.S. (Moskva)

Pierre Janet; on 100th anniversary of his birth. Zhur.nevr.1  
psikh. 61 no.3:449-456 '61. (MIRA 14:7)  
(JANET, PIERRE-MARIE FELIX, 1859-1947)

AKSENOV, P. V., kand. tekhn. nauk; PIRKOVSKIY, Yu. V.

"Using electric measurement methods in automobile testing"  
by N. A. Bukharin, V. K. Goliak. Reviewed by P. V. Aksenov.  
Avt. prom. 29 no.5:3 of cover My '63. (MIRA 16:4)

(Automobiles—Testing)  
(Bukharin, N. A.)  
(Goliak, V. K.)

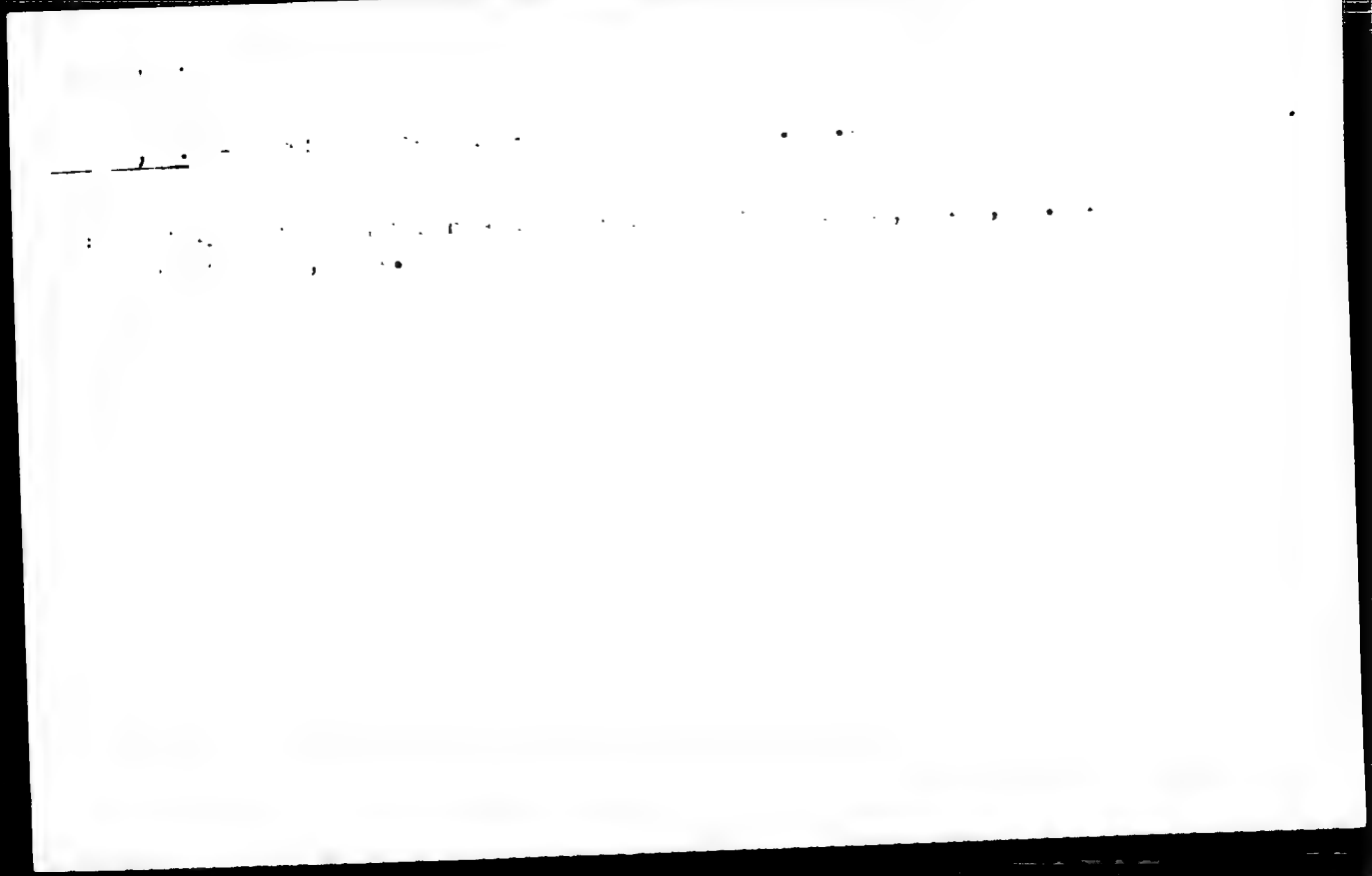


PIRKOVSKIY, Yu.V.; YATSENKO, N.N., kand.tekhn.nauk

Effect of the structural design of the drive for front driving  
axles of motor vehicles on their tractive and economic char-  
acteristics. Avt.prom. 29 no.1:15-19 Ja '63. (MIRA 16:1)  
(Motor vehicles--Transmission devices)

"APPROVED FOR RELEASE: 07/13/2001

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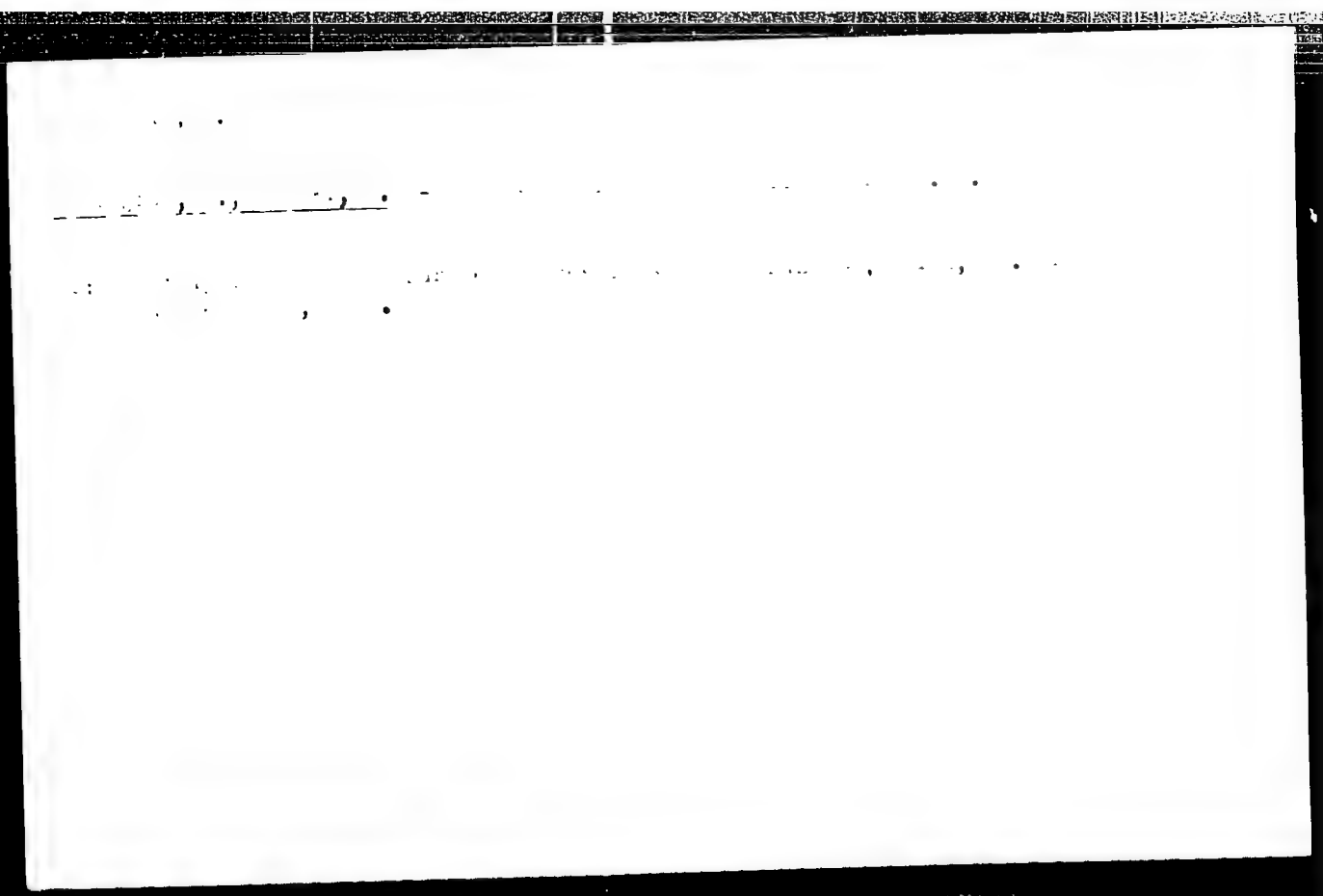
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FIRLEA, C., Ing.

A modern concrete plant. Constr Buc 16 no.759:3  
26 J. '64.

"APPROVED FOR RELEASE: 07/13/2001

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PIRLIGRAS, E.

Aspects for the study and improvement of boring fluids. p. 11<sup>e</sup>.

PETROL SI GAZE

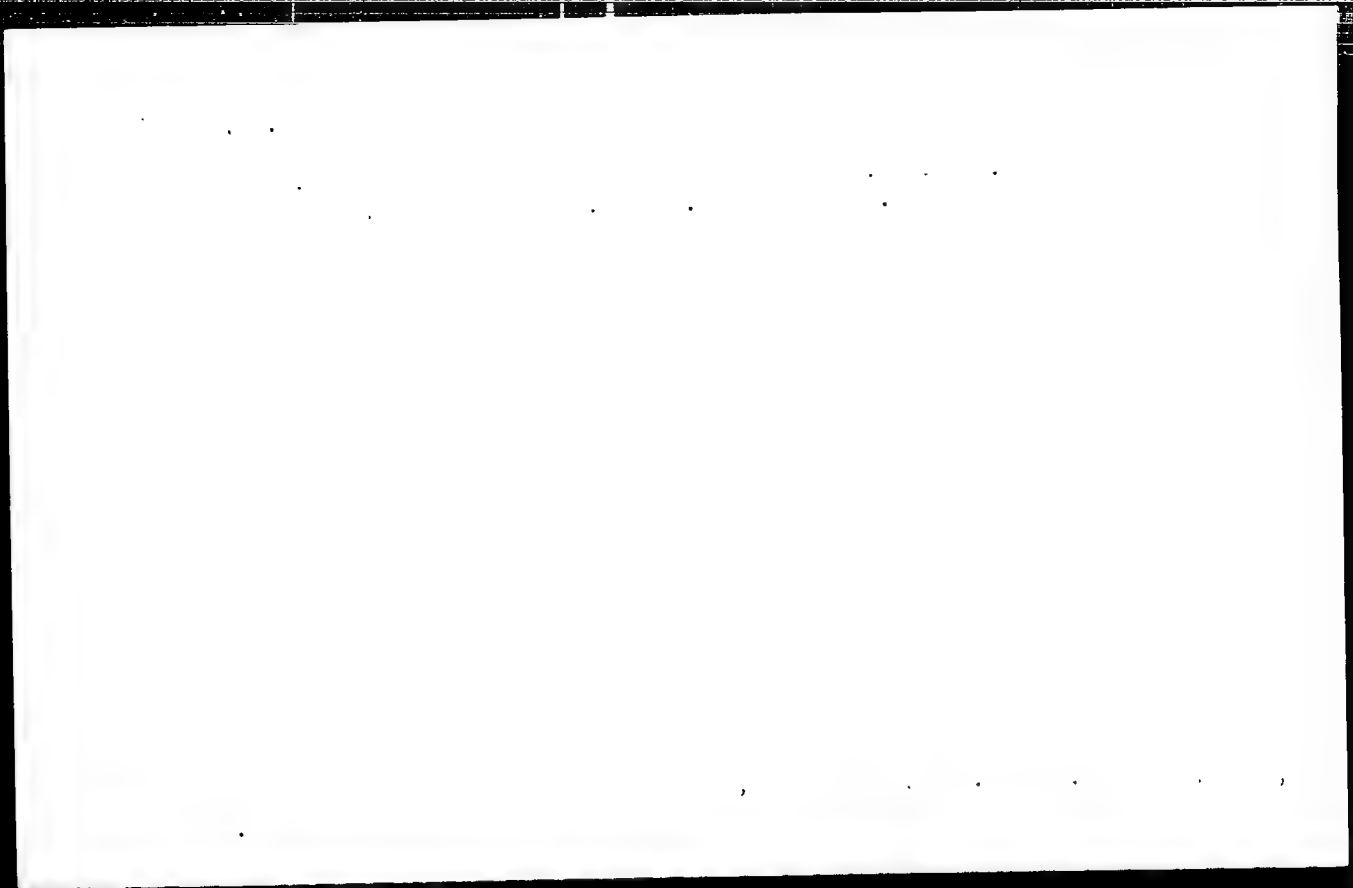
Vol. 7, no. 3, Mar. 1956

Rumania

Source: EAST EUROPEAN LISTS Vol. 5, no. 10 Oct. 1956

"APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001341010012-8



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CIA-RDP86-00513R001341010012-8"

New equipment for the transmutation of elements  
 ✓ back into Uranium 17 11 27 41 1941. 4  
 Alvin Hirsch

PIRLIGRAS, E., ing.

A new cement for the wells of Rumania. Petrol si gaze 12  
no.3:97-100 Mr '61.

1. Institutul de Cercetari pentru Foraj si Extractie, Cimpina.



PIRLIG AG, S.; KIRDEY, I.

Cements for cementing methane gas wells. p. 380.

PETROL SI GAZ . (Asociatia Stiintifică a Inginerilor si Technicienilor  
din Romania si Ministerul Industrii Petrolului si Chimiei) Bucuresti  
Romania. Vol. 10, no.9, 1969

Monthly list of East European Acquisitions (EPAI) LC Vol. 9, no.2  
Feb. 1960

Uncl.

PIRLIGRAS, E.; KINSKY, T.

Importance of using emulsions as drilling fluid. p. 235.

PERTOL SI GAZE. (Asociatia Stiintifica a Inginerilor si Tehnicienilor din  
Romania si Ministerul Industriilor Petrolului si Chimiei) Bucuresti, Romania.  
Vol. 10, no. 6, June 1959.

Monthly List of East European Accessions (FEAT) IC Vol. 9, no. 2, Jan 1960

Uncl.

PHILIPAS, F.

1971-72

For record: 100-100000, 100-100000, 100-100000

FTL: AL, T. Research conducted in Salt Lake City, UT.

Mont. by Hist. of Eur. War. Am. Soc. 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915,

Religion, '99



P.R. Lagun. A.

1. Main session - 15 January 1959, 1400 hours  
 Title: Use of Mathematical Methods in the Solution  
 of Industrial-Economic Problems

- 1) G. A. Buzin - The Solution of Extremum Problems for the  
 Multi-Section of a Plant on the Basis of the Labor  
 Input Factor
- 2) M. M. Zolotarev - The Grapho-Analytical Method of Determining  
 the Rate, Degree of Specialization and Location of  
 Multi-Plant Enterprises
- 3) I. B. Zhigler - The Application of Extremum Operational  
 Techniques to Industrial Enterprises Operations
- 4) G. A. Buzin - Mathematical Methods in the Organization and  
 Planning of Production
- 5) A. A. Buzin - The Application of Linear Programming Methods to  
 Agricultural Economic Problems
- 6) The A. P. Kirin, P. I. Kuznetsov - On the Problem of Determining  
 the Optimal Location of Enterprises
- 7) A. Buzin - A Simplified Method for Economic Comparison of  
 Alternative Technical Decisions in the Chemical Industry
- 8) P. M. Zolotarev - The Economic and Operational Significance  
 of the Extremum Coefficient of Additional Capital  
 Investment

1. Plenary Session - 15 January 1959, 1600 hours

- 1) Adoption of Decisions by the Conference
- 2) Concluding Remarks (in the name and on the instruction of the  
 Conference President)

*PERLINA N. P.*

EXCERPTA MEDICA Sec 5 Vol 12/1 Gen Pathology Jan 59

282. A FATAL CASE OF SYMPATHOGONIOMA IN A CHILD AGED 17 DAYS  
(Russian text) - *Perlina N. P.* - ARKH PATOL. 1956, 20 2 (42-55), 1, 115-4  
Post-mortem examination of a child aged 17 days revealed a tumour of the post-  
erior mediastinum and in the left part of the chest at the level of the 3rd to 10th  
thoracic vertebrae. The tumour was 6.5x7.5x4 cm., firm, uneven and of grey  
colour. Section revealed a pattern of round convexities of yellowish-white colour,  
separated by tissue bands of red colour. The posterior part of the tumour adhered  
closely to the spinal column and to the thorax, and penetrated into the intercostal  
muscles. The ribs had undergone no change. At the level of the vertebrae Th6 to  
Th9, the tumour penetrated into the spinal canal, pressing the spinal cord to the  
right. The right sympathetic trunk remained unchanged, the left trunk was dis-  
solved into the tumour tissue at the level of the 3rd rib. No metastases could be  
found. Microscopical examination revealed a sympathogonioma.

Karlinska - Warsaw (V, 16)

ILIESCU, C.C., prof.; MIHAILESCU, V.V.dr.; ENESCU, R. dr.;  
PASTIU, V., dr.; SVETZ, M.dr.; SEENGHE, S.dr.; ARON, L., dr.;  
CLEJ, V.dr.; MALITCHI, E., dr.; PIRLOG, C.dr.; RADESCU, R., dr.;  
ILIESCU, A., dr.; CHIRILA, O., dr.; CRUTU, S.

Natural history of arterial hypertension. Statistical observations  
on 3800 cases followed up for at least 10 years.  
Med inter 15 no. 5:563-571 My '63.

1. Lucrare efectuata la ASCA, Bucuresti.  
(HYPERTENSION)

TEUTSCH, H.; MATEESCU, N.; PIRLOGEA, P.; RADULESCU, C.; TIMIS, P.; VASILIU, V.

Characteristics of the neutron shutter with curved slits of the  
Institute of Atomic Physics of Bucharest. Studii cerc fiz 12 no.3:  
667-674 '61.

1. Institutul de fizica atomica, Bucuresti.

(Neutrons) (Electronic instruments)



PIRMAYTIS, M.Ya. [Pirmaitis, M.]; MATS, P.Ye.; TSEYTLIN, D.A.

New developments in the organization of wholesale trade fairs.  
Kozh.-obuv. prom. 5 no.11:9-12 N '63. (MIRA 17:1)

Country: USA      Date: 10/10/19  
 Rating: 100%      CLAIM: 100%

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1941

Approved: \_\_\_\_\_  
 Date: \_\_\_\_\_

U.S. DEPARTMENT OF JUSTICE

Magnolia, Liriodendron, Anemone, and other plants are discussed. The author suggests the reproduction of Magnolia, Liriodendron, Anemone, etc., by cuttings. The following plants are mentioned: Magnolia, Liriodendron, Anemone, etc. The author suggests the reproduction of these plants by cuttings. It is suggested that Magnolia, Acer saccharinum and Corylus be used by layering. Several budding methods are described.--G.M. Stoyko

191



PIRNAT, V.

Shipping activities on the Slovenian littoral in 1958, p. 111.

POMORSTVO. Rijeka, Yugoslavia. (Publication on shipbuilding and merchant marine; with English and French summaries. Includes a supplement: Bilten Pomorstva o radu Sindikata radnika i sluzbenika pomorske privrede Jugoslavije, information bulletin on the activity of the Union of workers and Employees in the Maritime Economy of Yugoslavia.) Vol. 13, no. 4, 1958.

Monthly List of East European Accessions (EEAI LC, Vol. 8, no. 9, Sept. 1959.

Uncl.

PIRNAT, V.

Fisherman Day on the Slovenian seaboard. p. 24.  
(Gosposki vestnik, Vol. 9, No. 1, Jan. 1957, Ljubljana, Yugoslavia)

SO: Monthly List of East European Accessions (REAL) Lc. Vol. 6, No. 8, Aug 1957. Uncl.

SKERLJ, Joz; JOVAK VIO, Milutin; FIRNAT, Zvonko

Deposits of kaolin granite in Karacevo. Glas Irir muz A  
14/15: 263-279 '61.

SKERLJ, Joz; PIRNAT, Zvonko

Deposits of carbonate rocks in the greater area of Kacanik.  
Glas 'rir muz A 16/17 171-181 '62.

OTROSHCHENKO, G. I.; KIRILOV, Y. V.; SADYKOV, A. S.; PIRNAZAROVA, F.

Substance of 2,3' dipyridyl. Nauka, TashGU no. 263. Khim. nauki  
(MIRA 18:8)



PIRNER, M.

Production of spectrographic standard electrodes. p.573.  
(Hutnicke Listy, Vol. 12, No. 6, June 1957, Brno, Czechoslovakia)

SO: Monthly List of East European Accessions (REAL) 10. Vol. 6, No. 6, Part. 1. 1957.

FIRNER, M.

Tables for the main railway bridge girder with eccentrically attached diagonals.

P. 158 (Železniční Technika) Vol. 5, No. 6, June 1957, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958

PIRNER, M.

3

Brass with non-magnetic properties. M. Pirner (Humboldt Univ.,  
1884, p. 318-223). The influence of ~~non-magnetic~~ impurities  
and of surface conditions on the magnetic properties of brasses  
of best and 1488 Pb is investigated. In obtained brasses of best  
non-magnetic properties the Fe content must be <0.03% and Mn  
<0.2%. Ni up to 2% has little effect on magnetic properties. It is  
possible to produce good non-magnetic brasses containing up to  
0.1% Fe by suitable heat treatment and method of working aimed  
at retaining Fe in solid solution or in  $\beta$ -phase. S. K. Lachowicz.

PIRNER, Milos, inz.

Two girders connected by an elastic medium. Inz stavby 9 no.10:  
393-395 0 '61.

1. Vysoka skola dopravní, Praha.